



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8960

August 16, 2011

Sheila Watts, P.E.
Engineering Services Division
Bureau of Air Quality
2600 Bull Street
Columbia, South Carolina 29201-1708

Dear Ms. Watts:

Thank you for sending the prevention of significant deterioration (PSD) permit application for the proposed expansion of the Showa Denko Carbon facility located in Dorchester County, South Carolina, which we received on June 20, 2011. The project is for the planned increase in the production of finished graphite electrodes from 45,000 to 85,000 metric tons per year of finished graphite electrodes. According to the application, total emissions from the proposed project are above the thresholds requiring PSD review for total Particulate Matter (PM), Particulate Matter with an aerodynamic diameter less than or equal to 10 microns (PM₁₀), Particulate Matter with an aerodynamic diameter less than or equal to 2.5 microns (PM_{2.5}), sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), Volatile Organic Compounds (VOC), Lead, and Greenhouse Gases (GHGs).

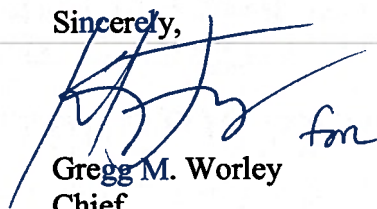
Based on our review of the PSD permit application, we have the following comments. We provide these comments to help ensure that the project meets federal Clean Air Act requirements, that the permit will provide necessary information so that the basis for the permit decision is transparent and readily accessible to the public, and that the record provides adequate support for the permit decision.

1. Section 2.2 of Appendix IV states that oxidation catalyst is deemed technically infeasible in part because of the "...potential of catalyst poisoning" due to the reaction of SO₂ with the catalyst. However, the primary and secondary fuel sources are listed as natural gas and propane, respectively. These are considered to be low sulfur fuels, so it is not clear how SO₂ would be introduced into the flue gas for the potential reaction. Please clarify why oxidation catalyst is technically infeasible due to the potential of catalyst poisoning.
2. According to Part 3.B. of the March 2011 PSD and Title V Permitting Guidance for Greenhouse Gases, Step 1 of the Best Available Control Technology (BACT) analysis defines the process for the identification of all available control options, which includes the identification of control options with inherently lower-emitting processes, practices, and designs. We note that, in the permit application, Section 2.1 of Appendix IV states that the energy efficiency for all three GHG emission sources is affected by "...combustion air preheat and excess air monitoring/control." Table 2 of Appendix IV then lists a combination of preheat and excess air devices as proposed BACT control options. However, it is unclear whether the applicant considered the energy efficiency of the individual emission units, and perhaps the individual control devices, when designing the process. Please provide an explanation of the GHG BACT decision-making process, and how these emission units and control devices were chosen over other available energy efficient technologies.

3. Table 1 of Appendix I lists a summary of cumulative potential emissions from the new equipment. While there are numerous spreadsheets in the Assumptions and Calculations section that include many smaller emissions for each source, it is difficult to determine how the total emissions in Table 1 were calculated. Please provide subtotals of the emissions for each process to aid in this determination.
4. It is our understanding that the existing equipment can be affected by the operation of the new equipment. The current PSD application does not make it clear whether this is the case. Please clarify whether emissions from the existing equipment will be affected by the operation of the new equipment (*i.e.*, debottlenecking and increased utilization) and include any emissions increases in the applicability analysis.
5. In the uncontrolled emissions calculations, it is unclear whether startup and shutdown emissions are included. Please clarify whether these emissions are included, and please quantify these emissions.
6. It appears the application does not contain a complete BACT analysis, with practically enforceable permit limits, for all pollutants. The permit application does not contain a BACT emissions limit for GHGs (preferably on a CO₂e basis) for all emissions units in each of the three processes. Further, BACT emissions limits are listed as "N/A" for a number of emissions units in the Proposed BACT Limits and Control Options tables for SO₂, CO, NO_x, and VOC. Finally, a number of the BACT emissions limits in the Proposed BACT Limits and Control Options tables are listed in units of "% control." As stipulated by the definition of BACT, the permit should contain "an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act which would be emitted from any proposed major stationary source or major modification...." An operational standard may be used if a numerical emission limit is not feasible for a specific emission unit, but this justification should be included in the application.

If you have any questions regarding these comments or need additional information, please contact Andrew Parks at 404-562-8122 or parks.andrew@epa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Gregg M. Worley", is written over a horizontal line. To the right of the signature, the word "for" is written in a cursive script.

Gregg M. Worley
Chief
Air Permits Section